

## CLAIMS

1. A direction finding radiation detector for detecting a direction of incidence of radioactive rays, the detector comprising:

5       a plurality of scintillators made of the same material, being arranged to overlap circumferentially at least in part so that they are shadowed by each other from radioactive rays incident in circumferential directions and so that light emitted from one of the scintillators is not incident on the  
10 other scintillators; and

photoreceptor devices each having a light receiving surface optically coupled to each of the scintillators, wherein

a combination of proportions of radioactive rays incident  
15 directly on the respective scintillators and radioactive rays incident indirectly, being shadowed by the other scintillators, varies with the direction of incidence circumferentially.

2. The direction finding radiation detector according to claim 1, wherein the scintillators are two in number so that  
20 the direction of incidence is detected halfway around in the range of 0° to 180°.

3. The direction finding radiation detector according to claim 1, wherein the scintillators are three or more in number so that the direction of incidence is detected all around in  
25 the range of 0° to 360°.

4. The direction finding radiation detector according to any of claims 1 to 3, wherein the scintillators are formed by splitting a single scintillator in the circumferential direction.

5        5. The direction finding radiation detector according to any of claims 1 to 4, wherein the scintillators are connected to amplifiers having respective different gains, the amplifiers are connected to a single A/D converter, and the A/D converter is connected to a pulse height analyzer  
10 corresponding to each of the scintillators.

6. The direction finding radiation detector according to any of claims 1 to 4, wherein the scintillators are connected to respective amplifiers, the amplifiers are connected to A/D converters having respective different conversion rates, and  
15 the A/D converters are connected to a pulse height analyzer corresponding to each of the scintillators.

7. The direction finding radiation detector according to any of claims 1 to 4, wherein the scintillators are connected to respective amplifiers, the amplifiers are connected to  
20 respective A/D converters, and the A/D converters are connected to respective pulse height analyzers.

8. A radiation monitoring method using the direction finding radiation detector according to any of claims 1 to 7.

9. A radiation monitoring apparatus comprising the  
25 direction finding radiation detector according to any of

claims 1 to 7.